

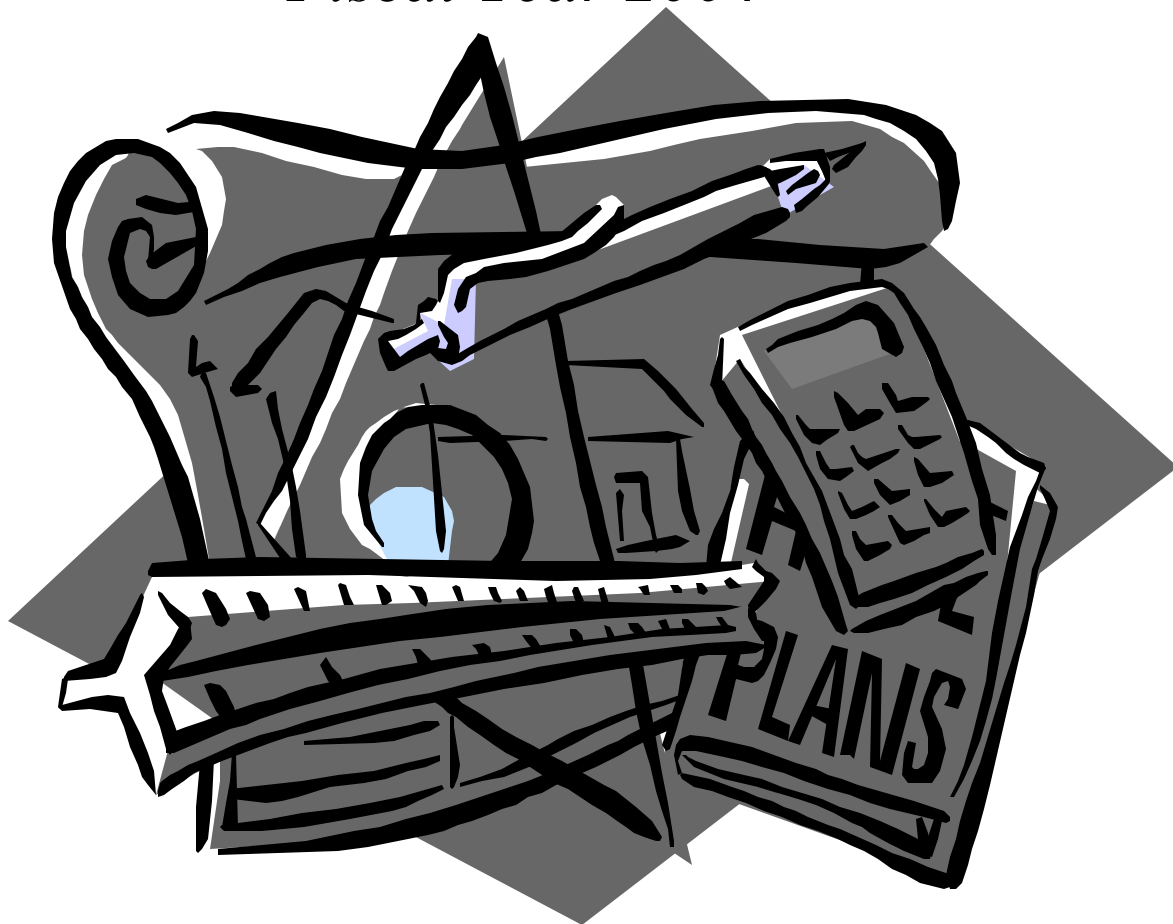


Washington State
Conservation
Commission

PROFESSIONAL ENGINEERING GRANTS PROGRAM

Engineering Portfolio

Fiscal Year 2004





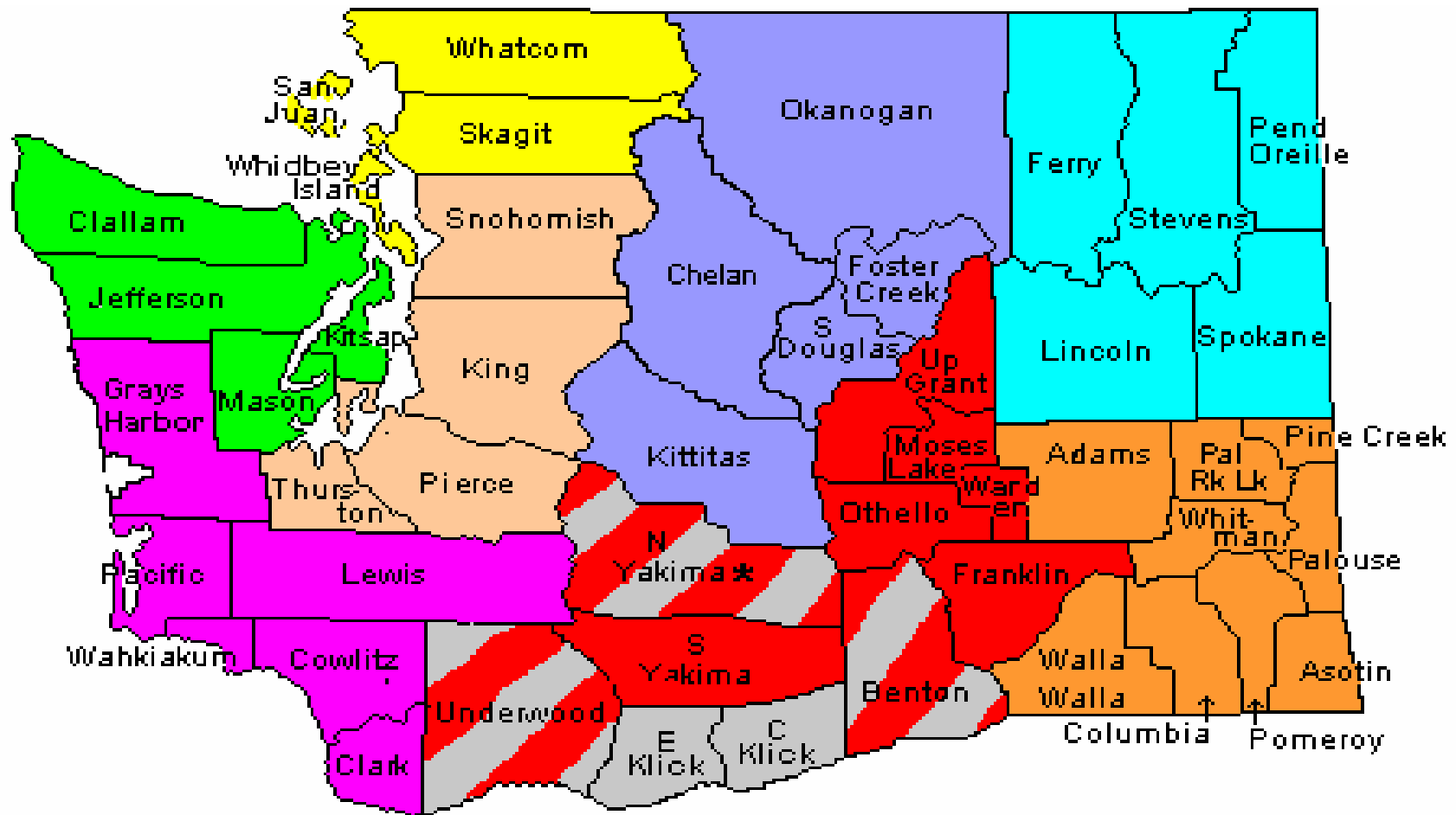
PROFFESIONAL ENGINEERING GRANTS PROGRAM

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PROFESSIONAL ENGINEERING GRANTS PROGRAM ENGINEERING PORTFOLIO

Conservation Districts served by 9 cluster engineers



PROFESSIONAL ENGINEERING GRANTS PROGRAM ENGINEERING PORTFOLIO

Program Description

For the 2003-2005 Biennium the legislature provided the Conservation Commission with \$1.5 million in Water Quality Funding to support the Professional Engineering Grant Program. This program provides funding to “clusters” of conservation districts that enables them to hire a professional engineer, and accomplish engineering work prioritized by each respective cluster.

Each cluster consists of several conservation districts that prioritize the time and work location for its respective engineer. Each district participating in the cluster appoints a representative to serve on a Board of Directors which has the power to prioritize the workload of the cluster engineer.

Currently the Professional Engineering Grant Program supports nine Professional Engineers who service 48 conservation districts.

PROFESSIONAL ENGINEERING GRANT PROGRAM ENGINEERING PORTFOLIO

Report of Accomplishments

July 1, 2003 through June 30, 2004

Total number of landowners to which engineering technical assistance was provided.	484
Total number of cooperators who implemented BMPs	156
Total number of BMPs implemented	255
Number of small farm BMPs overseen to completion	65
Number of habitat restoration BMPs overseen to completion	79
Number of livestock BMPs overseen to completion	69
Number of irrigation improvement BMPs overseen to completion	56
Number of non point water quality improvement BMPs overseen to completion	13
As a result of the BMPs completed, total number of acres protected, enhanced, or restored that will not/no longer contribute to surface or groundwater pollution	10,314 Acres
As a result of the BMPs completed, total number of stream miles protected, enhanced, or restored	68.25 Miles
Total grant amount spent during this reporting time period	\$689,974
Total other funding leveraged with this funding	\$1,315,230

PROFESSIONAL ENGINEERING GRANTS PROGRAM

Engineering Portfolio for Ryan Bartelheimer

CD assignments

Snohomish CD Thurston CD
King CD Pierce CD

Education

B.S. Agricultural Engineering, Washington State University

Work Experience

Snohomish Conservation District 1994- present.

Licensed district engineer running a program to provide engineering services for soil and water conservation projects from 2000 to present. Prior to 2000, planned, designed, and implemented conservation practices under the supervision of NRCS and private PEs.

Bartelheimer Brothers, Inc. 1992 – 1994.

Assisted in managing a large family-run dairy farm.

Areas of Specialization and Representative CD Projects

Small Farm Water Quality Improvement (66 designs stamped)



Before Sacrifice Area Installation



After Sacrifice Area Installation

Sample Project: *O'Neil Sacrifice Area and Outlet (\$4,415 construction cost, 50% cost-share provided by Snohomish County Surface Water Management's Water Quality Improvement program)*

With other staff at Snohomish CD, planned, designed, and inspected the construction of a sacrifice area and an underground outlet system. The objective of the project was to reduce the potential for water quality problems by collecting the water from the barn roofs and outletting it in a clean, vegetated location and by creating a sacrifice area where the horses could be kept in the winter months to avoid the previous mud and manure problems. Approximate project cost: CD PE engineer: 5 hours (\$234), CD non-PE engineer: 8 hours (\$256), CD planner: 25 hours (\$746), construction (\$4,415)

AFO/CAFO BMP Implementation (27 stamped designs)

Sample Project: *Misich Waste Storage Structure* (\$117,655 construction cost, \$50,000 cost share provided through Conservation Commission's Dairy Water Quality Improvement Grant)



Concrete Slab for Manure Storage

With other staff at Snohomish CD, designed, assisted landowner with permits, and supervised construction of 200' by 150' concrete slab designed to allow storage of solid dairy manure for duration of the non-growing season. Approximate project cost: CD PE engineer: 40 hours (\$1,868), CD non PE engineer: 102 hours (\$3,264), construction: (\$117,655).

Sample Project: *Bueler Waste Transfer System* (\$2,217 construction cost, 75% cost share provided through Conservation Commission's Dairy Water Quality Improvement Grant)



Waste Transfer System

With other staff at Snohomish CD, designed project and supervised construction of a simple, low-cost waste transfer system to collect manure runoff and divert it to the existing waste handling system. Approximate project cost: CD PE engineer: 10 hours (\$467), CD non-PE engineer: 90 hours (\$2,880), construction: (\$2217).

Stream Habitat Restoration (17 stamped designs)

Sample Project: *Riley Slough Fish Passage Improvement* (\$18,701 construction cost, \$10,800 paid through Centennial Clean Water Grant, \$7,900 paid by Adopt-A-Stream Foundation)



Concrete Deck Bridge

With other staff at Snohomish CD, designed, permitted, and supervised construction of the removal of a culvert and earthfill from Riley Slough, a tributary and flood refuge area of the Skykomish River and replacement with a concrete deck bridge. Approximate project cost: CD PE engineer: 60 hours (\$2,803), CD non-PE engineer: 188 hours (\$6,000), CD Technician: 59 hours (\$1,758), construction: (\$18,701).

Ryan Bartelheimer, P.E.
Projected Workload
2005-2007 Biennium

Year 1 of Biennium

Activity	Engineer Hours
AFO/CAFO	115
Small Farm	575
Habitat Restoration	402
Irrigation	29
Water Quality	28
Training/Workshops/Specs/other	619
Sick/Vacation/Holiday	312
Totals	2080

Year 2 of Biennium

Activity	Engineer Hours
AFO/CAFO	111
Small Farm	554
Habitat Restoration	388
Irrigation	28
Water Quality	27
Training/Workshops/Specs/other	660
Sick/Vacation/Holiday	312
Totals	2080

PROFESSIONAL ENGINEERING GRANTS PROGRAM

Portfolio for Tom Bumstead, P.E.

CD assignments

Ferry County CD
Lincoln County CD
Pend Oreille CD

Spokane County CD
Stevens County CD

Education

B.S. Fish and Wildlife Management, Montana State University
M.S. Civil Engineering, Washington State University

Work Experience

NE Washington Conservation Districts. 2003 - present.

Mr. Bumstead was hired as the Northeast Washington cluster engineer on October 1, 2003 and worked part-time until May 1, 2004 when he began full-time work. When working part-time, Mr. Bumstead familiarized himself with the current and potential projects within the 5 counties and the technical staff of the conservation districts. Since beginning full-time, he has been extremely busy completing project surveys, designs, and permit applications to implement projects in Fall 2004.

River Masters Engineering, Inc. 1985 - 2003.

Mr. Bumstead formed River Masters Engineering in 1985 to provide fisheries engineering expertise to federal, state and local agencies and private landowners. His unique combination of academic training in both fisheries biology and engineering allowed him to understand the complex interaction of fisheries and engineering on a diversity of projects. Mr. Bumstead worked on projects involving both anadromous and resident fish and typically participated in all phases of a project from planning and design through construction and project evaluation. He was project leader on a wide variety of projects including stream habitat improvement and channel restoration projects, evaluation and modification of passage barriers for upstream and downstream migration, analysis and design of fishways at dams and waterfalls, evaluation of hydrologic and hydraulic characteristics of streams and rivers, and analysis of hydropower projects for fisheries impacts. Mr. Bumstead worked on projects in Washington, Oregon, Idaho, Montana, Utah, Michigan, and New York during this time.

Washington State University. 1982 - 1985.

Mr. Bumstead worked as a Research Associate at the Albrook Hydraulics Laboratory designing, fabricating, and testing hydraulic models to study the flow patterns and properties within the model reach. He participated in several projects dealing with fishway operation, sediment transport, reservoir embayment circulation, fish passage at irrigation diversions, and spillway modifications. For several of these projects, Mr. Bumstead was the project manager overseeing the overall operation of the model study.

Areas of Specialization and Representative CD Projects

River Engineering

River engineering projects typically involve evaluating the interaction between the river flow, floodplains, and streambanks. Rivers and streams seek equilibrium between the flow and the channel and design of projects in the river corridor must understand this process. Typical projects include stream bank stabilization, stream channel restoration, and river channel realignment.

Sample Project: Colville River Bank Stabilization

This project has included the site survey, design, and permit application submittal to WDFW with construction anticipated to begin in mid-August 2004. The Colville River at the project site is trying to reestablish a channel meander after being dredged in the 1940's and 1950's. With little riparian vegetation to hold the bank in place, the river erodes the sandy soil in the bank very easily and is causing the landowner to lose approximately 2 to 4 feet of bank annually. A design has been completed to stabilize the bank with large woody debris at the toe and soil lifts up the slope that will be planted with riparian plant species to reestablish the bank vegetation.

Fish Passage

Fish passage projects typically involve the analysis of natural or man-made fish passage barriers. Adult and juvenile age class anadromous and resident fish migrate up stream and downstream during specific time periods throughout the year. In a majority of streams, fish passage conditions must be provided over the entire year to allow migration for all adult and juvenile fish. Typical projects include fishway evaluation and modification, natural barrier evaluation and modification, and culvert evaluation and modification.

Sample Project: South Fork San Poil Culvert Replacement

This project has included a site visit, stream channel evaluation, and a coordination meeting with WDFW to evaluate an existing design and determine if this design needed to be modified. Fish passage for both adult and juvenile fish is blocked by the 30-inch drop at the culvert outlet at this project site. Channel characteristics both upstream and downstream of the culvert suggest that this site is at the upper limit of using a large diameter culvert to replace the existing culvert. A bridge can easily be installed at this site to provide fish passage conditions. Further discussions with WDFW will be completed to decide the preferred design alternative prior to the initiation of the site survey and project design.

Habitat Restoration

Habitat restoration projects typically involve the modification of the existing physical features within a river, stream, riparian area, grassland, or forest to create specific habitat

components. All plants, animals, fish, and amphibians have specific habitat requirements for them to exist and thrive at a specific location. Modification of the existing habitat components to create the required habitat features is necessary to restore plant and animal communities. Typical projects include fish habitat enhancement, wildlife habitat improvement, and upland bird habitat enhancement.

Sample Project: Cedar Creek Project

This project was done in cooperation with the US Fish and Wildlife Service to provide additional fish habitat in Cedar Creek. Primary components of the project included the removal of a culvert fish passage barrier and replacement with a rail car bridge and the removal of a crib log dam and upstream sediment. While the overall emphasis of the project was removal of two major passage barriers, the overall purpose of the project was the restoration of habitat connectivity within this 3000 ft reach of Cedar Creek. CD Engineering provided the site survey and photo documentation to the USFWS for design and implementation of the project

Irrigation Diversion Upgrades

Irrigation diversion upgrade projects typically involve the rehabilitation of the existing diversion to provide adult and juvenile passage past the diversion and to prevent juvenile and adult fish from entering the irrigation canal. All adult and juvenile fish must be kept in the main stream or river channel as this location provides the best conditions for long-term survival. Numerous existing diversions do not provide suitable passage conditions and remove large numbers of fish from the main channel. Typical projects include installation of new intake screens, installation of new diversion structure and intake, and installation of pipeline to reduce water withdrawal requirements.

Sample Project: Indian Creek Irrigation Diversions

These projects have included the site visits, conceptual design development, and coordination with Washington Department of Fish and Wildlife for 3 projects on Indian Creek. All three irrigation diversions on Indian Creek need to be upgraded to meet current WDFW fish screen criteria. The lower diversion will require a simple screen intake and a new pipeline to reduce the volume of water withdrawal. The middle diversion will require a new diversion structure, channel restoration for fish passage, a new intake screen, and a new pipeline to reduce the volume of water withdrawal. The upper diversion will require a new drum screen intake, channel restoration at the screen site, and modification to the existing diversion structure.

Small Farm BMPs

Small farm BMP projects typically involve the installation of site-specific features that helps landowners manage their property. Best Management Practices have been developed for a large majority of the activities typically encountered when managing a

small farm. Typical projects include installation of grass waterways, installation of riparian fencing, and riparian grazing regimes.

Sample Project: Mundt Farm Grass Waterway

This project has included the site survey and preliminary design of a grass waterway on an ephemeral tributary to Hangman Creek. An existing grass waterway was in place but did not function properly prompting the landowner to request assistance with the redesign of the waterway. The new waterway will eliminate the humps in the channel and expand the settling pond at the downstream end of the waterway.

**Tom Bumstead, P.E.
Projected Workload
2005-2007 Biennium**

Year 1 of Biennium

Activity	Engineer Hours
River Engineering	820
Fish Passage	360
Habitat Restoration	212
Irrigation Diversion Upgrades	120
Small Farm BMPs	120
Professional Development	40
Short Courses & Training	80
Administration	144
Annual Leave & Holidays	184
Total	2080

Year 2 of Biennium

Activity	Engineer Hours
River Engineering	820
Fish Passage	360
Habitat Restoration	212
Irrigation Diversion Upgrades	120
Small Farm BMPs	120
Professional Development	40
Short Courses & Training	80
Administration	144
Annual Leave & Holidays	184
Total	2080

PROFESSIONAL ENGINEERING GRANTS PROGRAM

Portfolio for Paul H. Cleary, P.E.

CD assignments

Benton CD	Underwood CD
Central Klickitat CD	N Yakima CD
Eastern Klickitat CD	

Education

B.S., General Engineering, University of Portland, OR
Study of hydrology through USDA with courses at University MN and MD
Continuing professional development through ASCE and other professional organizations

Work Experience

Washington Conservation Districts. 2000- present.

District engineer providing a program for professional engineering services on projects involving protection or restoration of watershed functions.

Consulting Engineer. 1997 – 2000.

Established P.H. Cleary Civil /Hydraulic Engineering practice. Provided storm water hydrology and hydraulics for private land/property development. Provided hydrologic computer modeling to engineering firms and Conservation Districts for design of flood control works, watershed management and evaluation of conditions impacting fishery and other aquatic habitat.

USDA, Natural Resources Conservation Service (NRCS). 1966-1997

Civil/Hydraulic engineering planning watershed management and works for environmental quality, flood control and improved irrigation. Provided statewide program support and 11 watershed plans in Oregon (1989-97). Assigned to Western States (1982-89): OR, WA, ID, AZ, NM, UT and HI, to Nevada (1978-82), and in Wisconsin (1970-78). During these assignments 11 studies for flood hazard analysis and flood insurance were conducted and 22 projects for watershed and flood protection were planned. Worked as Civil/Agricultural engineer in West Central Oregon (1966-70); provided direct assistance on private land for water management.

Areas of Specialization and Representative CD Projects

Stream Habitat Restoration



J.P Enderby Project

Water quality was improved by reduction of the pond area subject to solar radiation and proportioned and shaded to correct water temperature impairment. Barnyard and roof runoff management were provided. Consequently, fish habitat is accommodated in the channel. CD engineering & follow up monitoring: 43.5 hours

Sample Project: *J.P Enderby / Channel Restoration (Central Klickitat CD – U.S Dept. Fish & Wildlife funded).*

Designed & supervised construction of an irrigation reservoir and downstream channel with riparian buffer. The project provided fencing of riparian areas and in-channel livestock watering facilities.



J.P Enderby Project

Sample Project: *Max Fernandez / Pond & Barnyard Improvement Projects (Central Klickitat CD – U.S. Fish & Wildlife funded)*

Designed, and supervised construction of reservoir linings and spillway improvements for two sediment reservoirs. Provided design and construction oversight for roof runoff management, diversion and filter strips to control runoff to creek channel from two barnyards. CD engineering: 150 hours.

Sample Project: *David Mitchell (Benton CD)*

Provided assistance for permit reviews for previous design (Year 2000) of 400 ft of riverbank repair. Repairs include bank sloping, erosion control matrix, plantings and two J-hook rock vanes. All permits are available and pre-construction conference with contractor advised construction should begin Aug 16, 2004. Conservation District engineering for permit review three hours does not include pending construction oversight by CD.



Stream Channel Repair

Sample Project: *Paul Gregg Stream Channel Repair (Central Klickitat CD)*

Designed channel and channel bank repairs, and livestock crossing following storm flow damage to recently installed improvements. Repairs included rootwads, rock cross vanes and erosion control blanket with plantings. CD engineering: 34 hours

Irrigation Improvements to Conserve Water and Benefit Water Quality

Sample Project: *Thiele Ranch (Central Klickitat CD)*

Made surveys and layout for three center-pivot irrigation systems. Systems will conserve water and minimize runoff to adjacent creek drainage. Conservation District engineering: 34 hours

Irrigation Diversion / Fish Passage

Sample Project: *Pellicer Fish Passage – Cowiche Creek (North Yakima CD – private and state funds)*

Provided survey and design for removal of an irrigation diversion and farm bridge. Designed footings for replacement bridge and designed five cross-vanes to provide fish passage through scour hole which developed downstream. Conservation District engineering: 366 hours. Construction is scheduled to begin August 2004.

**Paul H. Cleary, P.E.
Projected Workload
2005-2007 Biennium**

Year 1 of Bienniumb

Activity	Engineer Hours	Part-Time Engineer Hrs	Part-Time, EIT Tech / Planner Hrs
Stream Habitat Restoration	900	500	340
Irrigation Diversion/ Fish Screen	680	240	100
Irrigation Conveyance/ Water Conservation	120	160	120
Training/Workshops/ Specs/other	120	100	70
Sick/Vacation/Holiday	260	0	10
Totals	2080	1000	640

Year 2 of Biennium

Activity	Engineer Hours	Part-Time Engineer Hrs	Part-Time, EIT Tech / Planner Hrs
Habitat Restoration	1000	500	340
Irrigation Diversion/ Fish Screen	580	240	100
Irrigation Conveyance/ Water Conservation	120	160	120
Training/Workshops/ Specs/other	120	100	70
Sick/Vacation/Holiday	260	0	10
Totals	2080	1000	640

PROFESSIONAL ENGINEERING GRANTS PROGRAM

Portfolio for Rich Geiger, P.E.

CD assignments

Mason CD
Jefferson CD

Kitsap CD

Education

B.S.C.E., Gonzaga University
M.B.A., University of Washington

Work Experience

Washington Conservation Districts. 2001 - present.

Licensed district engineer running a program providing civil engineering services for soil and water conservation and salmon restoration projects for the Olympic Peninsula Conservation Districts.

Mason County Public Works. 1994 – 2000.

Began as an Engineering Technician – EIT, progressed to Design Engineer, Office Engineering Manager, and then Road Maintenance Department Supervisor. Designed, contracted and supervised construction of several major road and bridge construction projects.

US Army 1979-1993

Served as an Army Officer in several combat units, then served in several research, development, and systems testing organizations. Attended Army Logistics Management College to study government contracting.

Areas of Specialization and Representative CD Projects

Stream Habitat and Estuary Restoration

Sample Project: *Jimmycomelately Creek Channel Relocation (DOE Clean Water Grant – BIA Grant funded, along with many other funding sources).*

Designed, contracted, and supervised construction of 2700 feet of new creek channel and associated floodplain to replace an aggrading channel into which the creek had been diverted, probably before 1900. The new channel design required calculation of sediment transport characteristics from the stream's valley entrance to the saltwater shoreline of Sequim Bay. The channel design also required developing a design with WSDOT for a new bridge for US 101, now under construction. Also participated in estuary design to remove an abandoned log yard, manmade features, and earth fill to restore almost a mile of saltwater shoreline and over 19 acres of associated saltwater wetland. Provided stream engineering analysis for the restoration of Dean Creek which was reviewed and accepted as the basis for a \$1M NRCS Grant. Project has the additional benefit of eliminating a significant flood hazard on US 101. Approx. project cost: CD engineering: 1458 hours (\$60,769), channel construction: \$500,000 (*Plans attached*), bridge construction: \$1,200,000, estuary construction: \$1,800,000.



Concrete Bridge

Sample Project: *Spring Creek Culvert (SRFB Grant-Mason County)*

Designed, contracted and supervised construction of a 12' span by 40' wide concrete bridge to replace a 4' diameter culvert under a Mason County road. Structure was designed and built to County Road standards, and restored salmon access to over 4 linear miles of spawning and rearing habitat. Approx. project cost: CD engineering: 80 hours (\$3,335), construction: \$112,000.

Sample Project: *East Chimacum Creek (SRFB, Fish America, National Fish and Wildlife, and NOSC grant funded)*

Designed remeandered channel for this salmon-bearing creek, which was artificially straightened early in the 1900's. Performed survey and mapping of 2750 linear feet of stream channel and associated floodplain to develop the design. The design features creation of spawning areas, back channels for rearing and providing fish refuge during flood events. Approx. project cost: CD engineering: 120 hours (\$5,000), construction: \$90,000 (est.).

Sample Project: *Gosnell Creek Bridge (SRFB Grant-South Puget Sound Salmon Enhancement Group)*



Gosnell Creek Bridge

Designed, contracted, and supervised construction of a 40' span by 18' wide bridge for a Mason County Road crossing over Gosnell Creek. Structure was designed and built to County Road standards, and restored salmon access to over 3 miles of spawning and rearing habitat. The project also alleviated chronic flooding in the valley and downstream on Lake Isabella, significantly reducing flood damage, improving public safety, and improving water quality. Approx. project cost: CD engineering: 283 hours (\$11,780), construction: \$96,161.

Structural Design for Stormwater Management BMPs



Agricultural Bridge

Sample Project: *Haxton and Harp Livestock Bridges (EQIP, SRFB, and USFWS funded)*

Designed two 20' span agricultural bridges to eliminate livestock and vehicle fords on salmon-bearing streams. Bridges were designed to accommodate livestock and heavy agricultural vehicles. These designs featured the use of simple wood decks to reduce construction costs and allow them to be easily built by conservation corps crews, while being able to carry the load of a public highway bridge. Approx. project cost: CD engineering: 103 hours (\$4,295), construction cost: \$30,000 for both bridges.

Feasibility Studies

Sample Project: *Sherwood Creek Railroad Bridge (SRFB funded).*

Provided engineering consultation to South Puget Sound Salmon Enhancement



Railroad Bridge

Group to determine cost feasibility of replacing two 5' diameter x 300' long culverts with a 70' span railroad bridge. Demonstrated the bridge could be built for \$1.2M (vs. initial estimate of \$1.8M) for a SRFB grant application. The grant was approved, and the structure was built for a final cost of \$1M, well under budget, and restored salmon passage to over 20 linear miles of spawning and rearing habitat. Approx. project cost: CD engineering: 60 hours (\$2500), construction cost: \$1,000,000

Sample Project: *Skokomish River Restoration (SRFB, USACOE, and other funding sources)*

Providing engineering consultation for the ongoing Skokomish River Restoration effort. Developed engineering designs for an estuary dike removal, and provided consultation for conservation easement acquisition, engineered log jam installation, and river restoration. This information was used to submit a SRFB grant applications requesting \$400,000 for design completion and construction. Approx. project cost: CD engineering: 30 hours (\$1,250).

**Rich Geiger, P.E.
Projected Workload
2003-2005 Biennium**

Year 1 of Biennium

Activity	Engineer Hours	Resource Tech Hours
Small Farm	600	2106
Habitat Restoration	912	1404
Training/Workshops/Specs/other	280	
Sick/Vacation/Holiday	288	
Totals	2080	3510

Year 2 of Biennium

Activity	Engineer Hours	Resource Tech Hours
Small Farm	600	2106
Habitat Restoration	912	1404
Training/Workshops/Specs/other	280	
Sick/Vacation/Holiday	288	
Totals	2080	3510

PROFESSIONAL ENGINEERING GRANTS PROGRAM

Portfolio for Sam Giese, P.E.

CD assignments

Grays Harbor CD
Lewis CD
Cowlitz CD

Pacific CD
Wahkiakum CD
Clark CD

Education

BSCE Portland State University

Work Experience

Washington Conservation Districts -- Nov 2003 to Present

Professional Engineer, SW Washington Conservation Districts
Surveys, designs, drafts and oversees construction on water quality and habitat improvement projects for 6 districts. Provides technical assistance to districts and landowners.

Water Resources Engineer III, Clark Co Clean Water Program -- 2000 ~ 2003

Selected, planned and designed water quality projects to manage urban stormwater runoff. Prepared and obtained approval for stormwater Capital Program. Worked with citizen advisory group, county staff and to resolve stormwater and drainage issues. Worked with county staff to prepare program for monitoring stream flows and precipitation in the watersheds.

Design Section Supervisor, Clark Co Public Works Department – 1994 ~ 2000

Directed the work of multi-disciplinary team, including licensed engineers, staff ecologist and CAD operators. Work involved a broad range of responsibilities with emphasis on the following: design and preparation of construction documents for streets, pedestrian and bicycle paths, stormwater management and conveyance facilities, fish passage improvements, and sitework for county facilities. Project manager, including identification of funding partners, for the county fish passage program. Elements of this activity included community outreach, quality assurance, and permitting for above projects.

Various professional and technical positions – 1978 ~ 1994

Worked in the areas of survey, design drafting, construction management. Projects included sewer, water, street, logging and stormwater projects for both private and public owners.

Areas of Specialization and Representative CD Projects

Sample Projects: *Martin Clark Dairy*. Design and construction of 2600 lf of 6" irrigation line for use for irrigation water and nutrient management. Construction in August 2004. Cost- \$25,000.

Sample Project: *Fletcher Anderson Farm*. Design and construction of a bridge to replace 2 culverts and a weir that are a barrier to fish passage. Construction scheduled Summer 2005. Cost- \$30,000.

Sample Project: *Gene Winders Farm*. Design and construction of bridge to replace a cattle ford as part of a larger fencing and riparian planting project. Construction scheduled August 2004. Cost- \$28,000

Sample Projects: *Miscellaneous small forests, Lewis, Cowlitz and Wahkiakum Counties*. Design and construction of a bridge and four culverts to replace fish passage barriers Construction scheduled August-September 2004. Cost- ranges from \$10,000 to \$54,000 a site.

Sample Project: *Tony Tuck Site*. Design and construction of log jams and other large wood bank restoration types along 1200 lf of Salmon Creek as part of a larger and riparian planting project. Construction scheduled Summer 2005. Cost- \$123,000.

Sam Giese, P.E.
Projected Workload
2005-2007 Biennium

Year 1 of Biennium

Activity	Engineer Hours
Small Farm	160
Habitat Restoration	720
Dairy	200
Livestock AFO/CAFO	80
WQ Improvement	370
Training/Workshops/Specs/other	342
Sick/Vacation/Holiday	208
Totals	2080

Year 2 of Biennium

Activity	Engineer Hours
Small Farm	160
Habitat Restoration	720
Dairy	200
Livestock AFO/CAFO	80
WQ Improvement	370
Training/Workshops/Specs/other	342
Sick/Vacation/ Holiday	208
Totals	2080

PROFESSIONAL ENGINEERING GRANTS PROGRAM

Portfolio for Rusty Gigstead, P.E.

CD assignments

Kittitas, Chelan, Douglas, Foster Cr and Okanogan CD

Education

B.S. Civil Engineering, Structural Emphasis
Oregon Institute of Technology, Klamath Fall, OR

Work Experience

Kittitas County Conservation District: 2002- Present.

Licensed district engineer running a program to provide engineering services for soil and water conservation projects from 2002 to present

Columbia Northwest Engineering: 2000 - 2002.

Project Engineer developing and implementing a variety of civil engineering projects, including site development, traffic studies, intersection design, and structural design. Work also included providing on-call engineering services for Kittitas Reclamation District facilities.

Washington State Department of Transportation: 1982-2000.

Performed a wide variety of engineering and technical functions associated with the design and construction of transportation improvement projects in several geographic regions in the state. Emphasized in surveying, design, contract preparation, contract administration, agreement writing and planning.

Areas of Specialization and Representative CD Projects

Irrigation Conversion, Gravity Diversion to Pump Intake

Original Gravity Diversion



Fish Screen and Pumping Plant



Example Project: Lower Wilson Cr Passage and Screening: (\$40,000 construction cost, cost-share provided by USDA EQIP, Irrigation Efficiencies, Landowner, and Salmon Recovery Funding Board)

Efforts of the District Engineer included design of the fish screen configuration, permitting for the fish screen. This project opened up over a mile of fish habitat near the main stem of the Yakima River in Kittitas County.

Irrigation Conversion, Fish Passage and Screening

**Before Project, Push Up Dam
Teanaway River**



**After Project, Ring Wells and Pumping
Plants**

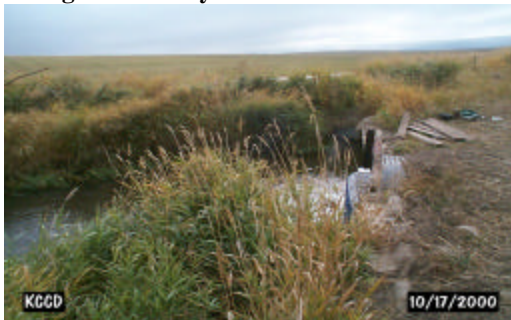


Example Project: Ballard Ditch\Teanaway River Irrigation Efficiency and Fish Passage. (\$230,000 construction cost, cost-share provided by BPA\DOE Water Quality, Irrigation Efficiencies, USDA EQIP)

Combining efforts with the Natural Resource Conservation Service, four landowners who obtained there water via a earthen ditch and a push-up dam on the Teanaway River in Kittitas County, were converted to properly screened points of diversion. This project potentially opened up 30 plus miles of habitat for aquatic species and should contribute much need flows to the main stem Teanaway River. Efforts of the District Engineer included design of the ring wells, project permitting, irrigation pipelines, and pumping plants.

Irrigation Conversion, Gravity Diversion to an Off Channel Pump Intake

Original Gravity Diversion/Earthen Ditch



Weed\Debris Screen Box



Weed\Debris Screen Box



Example Project: Coleman Cr Passage and Screening Phase 1: (\$30,000 construction cost, cost-share provided by USDA EQIP, Landowner and Salmon Recovery Funding Board)

Efforts of the District Engineer included design of the screen box, project permitting, and reconfiguration of the irrigation pipelines and pumping plants, as well as construction oversight.

**James Gigstead, P.E.
Projected Workload
2005-2007 Biennium**

Year 1 of Biennium

Activity	Engineer Hours
Small Farm	40
Habitat Restoration	1200
Livestock AFO/CAFO	40
Irrigation Improvements	400
Training /Workshops	120
Misc/Admin	80
Sick/Vacation/Holiday	200
Total	2080

Year 2 of Biennium

Activity	Engineer Hours
Small Farm	40
Habitat Restoration	1200
Livestock AFO/CAFO	40
Irrigation Improvements	400
Training /Workshops	120
Misc/Admin	80
Sick/Vacation/Holiday	200
Total	2080

PROFESSIONAL ENGINEERING GRANTS PROGRAM

Portfolio for Lance Horning, P.E.

CD Assignments

Adams County CD
Palouse CD
Pomeroy CD

Asotin County CD
Palouse-Rock Lake CD
Walla Walla County CD

Columbia CD
Pine Creek CD
Whitman CD

Services Offered

Animal Waste Systems
Irrigation System Design
Sediment Retention Structures

Stock Watering Systems
Fish Stream Enhancement
Culvert Design

Education

M.S. Engineering, Washington State University
B.S. Biological Systems Engineering, Washington State University

Work Experience

Environmental Engineer. Washington Conservation Districts. 2000- present.
Providing engineering services to conservation districts, NRCS and landowners for the benefit of the local communities.

Research Associate. Washington State University. 1994 – 2000.
Conducted research to assist the Washington State Department of Ecology and the US Environmental Protection Agency in the development of air quality policy.

Engineering Technician. Washington State University. 1992-1994
Assisted with multiple research projects in cooperation with the USDA-Agricultural Research Service.

Areas of Specialization and Representative CD Projects

Pipeline & Irrigation Design

Sample Project: *Irrigation Efficiency Improvements (Columbia CD)*
Designing irrigation pipeline to replace an existing open ditch to enhance in-stream flows for fish passage. Approx. project cost to date: CD engineering: 120 hours (\$5,400).



Pipeline

Sample Project: *Ledgerwood Pipeline (Pomeroy CD- CREP funded)*

Designed and supervised construction of 37,000 ft. of pipeline, 3 wells and 34 troughs for the enrollment of 233 acres in CREP program. Approx. project cost: CD engineering: 120 hours (\$5,400). Construction: \$180,000.

Animal Waste Management Systems

Sample Project: *Feedlot improvements #1*

Designing animal waste management system to assist producer in complying with AFO/CAFO rules. System consists of water system improvements, manure storage components and development of a comprehensive nutrient management plan. Approx. project cost: CD engineering: 50 hours (\$2,250).

Sample Project: *AFO/CAFO Technical Assistance*

Provided technical assistance to 15 producers (to date) on concerns they have in regards to AFO/CAFO. Assisting producers in complying with rules and regulations.

Fish Stream Improvements



Fish Habitat Enhancement

Sample Project: *Cow Camp/ Tucannon River (Columbia CD).*

Designed and supervised construction of 500 feet of fish habitat enhancement. Installed bank stabilization material to a cut bank. Approx. project cost: CD engineering: 50 hours (\$2,250). Construction: \$35,000.



Fish Passage Barrier

Sample Project: *Lewis Creek
Fish Barrier Removal (Columbia
CD).*

Designed and supervised
construction to remove a fish
passage barrier in conjunction with
a gravity diversion point. Installed
grade control structures and
refitted a gravity diversion.

Approx. project cost: CD

engineering: 55 hours (\$2,500).

Construction: \$30,000.

**Lance Horning, P.E.
Projected Workload
2005-2007 Biennium**

Year 1 of Biennium

Activity	Engineer Hours
Livestock- AFO/CAFO	640
Irrigation Improvements	300
Habitat Restoration	400
Technical Assistance (Walk-ins)	240
Administration/Training/Meetings	280
Sick/Vacation/Holiday	220
Total	2080

Year 2 of Biennium

Activity	Engineer Hours
Livestock- AFO/CAFO (hours)	640
Irrigation Improvements	300
Habitat Restoration	400
Technical Assistance (Walk-ins)	240
Administration/Training/Meetings	280
Sick/Vacation/Holiday	220
Total	2080

PROFESSIONAL ENGINEERING GRANTS PROGRAM

Engineering Portfolio for Tom Slocum, P.E.

CD assignments

San Juan County CD
Whatcom CD

Skagit CD
Whidbey Island CD

Education

B.A., Dartmouth College
M.S. Civil Engineering, Northeastern University
J.D., Seattle University Law School

Work Experience

Washington Conservation Districts. 2000- present.

District engineer running a program providing civil engineering services for soil, water and habitat conservation projects.

International Development Organizations. 1994 – 2000.

Worked in various positions for the United Nations Development Programme and the Asian Development Bank doing environmental engineering and environmental law projects in Bhutan, Vietnam, and Laos.

Engineering Consulting Firms 1985-1993

Environmental engineering, permitting, and project management for three private consulting firms. Work included wastewater treatment, hazardous waste management, and contaminated site cleanup at project sites across the USA.

Areas of Specialization and Representative CD Projects

Stream Habitat Restoration



Channel Restoration

Sample Project: *Van Beek / Tenmile Creek Channel Restoration (Whatcom CD-USDA EQIP funded).*

Designed, permitted, and supervised construction of 700 feet of new creek channel to replace a canary-grass clogged ditch into which the creek had historically been diverted. The channel design was based on the morphology of a less disturbed “reference reach” of a nearby creek. Approx. project cost: CD engineering: 290 hours (\$13,050), construction: \$15,000.



Flat Car Bridge

Sample Project: *Klein/Skiyou Slough Habitat Restoration (Skagit CD – SRFB funded).*

Designed, permitted, and supervised construction of the removal of an earth-fill causeway from a side slough of the Skagit River and replacement with a railroad flat car bridge. Designed and obtained a \$350,000 grant for this SRFB project, which also included purchasing a conservation easement, installing a CREP buffer, and replacing two fish passage blockages with bridges. Approx. project cost: CD engineering: 400 hours (\$18,000), bridge construction: \$70,000.

Stormwater Management BMPs

Sample Project: *Engle Farm Drainage Improvements (Whidbey Island CD)*

Designed repairs and improvements to runoff management in vicinity of silage bunkers at a dairy farm located in the Ebey's Landing National Historic Reserve. Approx. project cost: CD engineering: 70 hours (\$3,150).

Sample Project: *San Juan Vineyards Drainage Improvements (San Juan County CD - USDA EQIP funded)*

Designed a system of subsurface drains to replace eroding surface ditches at a hillside vineyard. Designed a pond to store runoff for use as irrigation water. Approx. project cost: CD engineering: 60 hours (\$2,700).

Wetland and Estuary Habitat Enhancement

Sample Project: *Mundt Wetland Enhancement (Skagit CD – privately funded)*

Designed, permitted, and supervised installation of wetland habitat enhancements on 3.5 acres of wet pasture. Enhancements included new pond and marsh areas and extensive planting of wetland plant species. Arranged project funding as part of off-site mitigation requirements for a private individual's development project. Approx. project cost: CD engineering: 340 hours (\$15,300), construction: \$25,000.

Sample Project: *Port Stanley Estuary Restoration Feasibility Study (San Juan County CD – USFWS grant funded)*

Designed and carried out a survey and feasibility study to evaluate alternatives for restoring estuary habitat in a degraded salt pond on Lopez Island. Designed and prepared permit applications for chosen alternative. Assisted CD with obtaining a WDFW LIP grant for funding construction of Phase 1 of the project. Approx. project cost: CD engineering: 250 hours (\$12,500). Construction: \$30,000 estimate.

Sample Project: *Deer Harbor Estuary Habitat Restoration Feasibility Study (San Juan County CD – SRFB grant funded).* Helped local stakeholders win a SRFB grant for completing a feasibility study of removing bridge fill from a tidal

lagoon. Currently am serving as project manager overseeing the feasibility study.
CD Engineering: 150 hours (\$7,500), total grant: \$140,000.

Feasibility Studies and Permitting

Sample Project: *No-Name Slough Watershed Functions Restoration (Skagit CD – project funded by Centennial Clean Water Fund Grant)*

Designed and currently carrying-out a watershed characterization and feasibility study to identify and evaluate alternatives for managing runoff and improving fish and wildlife habitat in a small watershed that drains into Padilla Bay. Approx. project cost: CD engineering: 300 hours (\$15,000), total grant \$260,000.



Placing Barb

Sample Project: *Hofman Bank Stabilization (Skagit CD – WDNR SIP funding)*

Designed, permitted, and supervised construction of a bioengineered bank stabilization project. Negotiated complex permitting requirements, including ESA consultation, WDFW HPA, and county shorelines, SEPA, and critical areas review. Approx. project cost: CD engineering: 180 hours (\$8,100), construction: \$18,000.

**Tom Slocum, P.E.
Projected Workload
2005-2007 Biennium**

	PE Grant Funded Hours	Other Funded Hours
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<u>For Skagit CD</u>		
No Name Slough Phase 1 CCWF Grant	100	300
Fisher / Carpenter Creek CCWF Grant	100	300
Skiyou Slough SRFB grant		80
Mundt wetland enhancement	50	
Skagit Watershed Council, project review committee TA	100	
Salmon Recovery Funding Board technical advisor	160	
Lanting EQIP design/permitting	100	
Drainage District 14 capital facilities planning	120	
Samish Tribe / Freestad Lake Restoration FS	100	
Samish Tribe / Samish Island Cut FS	100	
<u>For Whatcom CD</u>		
Tenmile Creek/E. Hemmi Rd, drainage/wetland enhancement TA	120	
Drainage and Irrigation District 7, permitting and mitigation	80	
Maberry Farm fish passage design	100	
<u>For San Juan County CD</u>		
Port Stanley Estuary Restoration	200	
Deer Harbor Ecosystem Restoration	100	100
Cook irrigation improvement EQIP	100	
Small farm BMPs	40	
<u>For Whidbey Island CD</u>		
Scoles Culvert replacement	80	
Lawson small farm BMPs	40	
Other small farm BMPs	40	
Program administration and development	560	
Leave (annual, sick, holiday)	540	
Training/Workshops/Specs/Other	450	
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Totals:	3380	780 = 4160 hrs

PROFESSIONAL ENGINEERING GRANTS PROGRAM

Portfolio for Mark Wasemiller, P.E.

CD assignments

South Yakima CD
Benton CD
Moses Lake CD
Othello CD
North Yakima CD

Franklin CD
Warden CD
Upper Grant CD
Underwood CD

Education

B.S. Agricultural Engineering, Washington State University

Work Experience

Washington Conservation Districts. 2000- present.

Oversee engineering program for eight conservation districts dealing mainly with dairy waste/nutrient management issues as regulated by Washington State Department of Ecology. Tasks include gathering resource inventory data, perform design calculations, development of construction and material specifications, and construction oversight of projects. These systems involve the collection, storage, and application of waste produced daily on a dairy. Components of these systems include above and below ground concrete storage structures, excavated and embanked storage lagoons, liner systems for storage lagoons (bentonite modified soil, Geosynthetic Clay Liners, other geosynthetics), and hydraulic/sprinkler systems (low and high pressure).

USDA – Natural Resources Conservation Service. 1997 – 2000.

Provided engineering services to Blue Mtn. counties of Washington State. Duties required the development and maintaining of documentation on engineering projects including streambank protection, instream fish habitat development for Walla Walla River, Tucannon River, and Touchet River watersheds. Design of road culverts to state fish passage regulations. Coordinate permitting needs for projects with city, county, state and federal agencies as required. Design of reinforced earth systems using a variety of geosynthetics including geotextiles, geogrids, geocells, etc. Oversee site construction and final inspection of all jobs. Supervise survey crews. Provide training to engineering technicians.

Westinghouse Hanford Company & IT Hanford 1989-1997

Managed projects and provided technical support to environmental restoration activities on the USDOE's Hanford Nuclear Reservation. Managed subcontractor work concerning the development of CERCLA RI/FS, RCRA RFI/CMS work plans, RCRA closure plans and Part B Permit applications, Quality Assurance Project and Program plans, summary reports, and other associated documents. Assisted in the development and negotiation with WDOE & USEPA of TMDLs on RCRA Part B Permits and Closure Plans. Performed and reviewed design calculations for groundwater treatment systems designed to treat up to 600 gpm of

effluent containing volatile and semi-volatile organics, nitrates, carbon tetrachloride, and other contaminants. Developed and implemented soil and liquid sampling plans in support of this work. Designed and/or evaluated hazardous waste landfill cover and liner systems using USEPA software. Interfaced with the EPA and Ecology personnel in relation to all projects. Developed and delivered technical presentations to management and regulatory personnel.

USDA - Soil Conservation Service 1986 – 1989

Responsible for engineering activities in Walla Walla, Benton, and Franklin counties. Designed and supervised construction of high and low pressure pipelines and water control structures for irrigation and livestock water systems with up to 5000 gpm and 60 psi delivery requirements, designed and installed solid set irrigation and drip irrigation systems for orchards, vineyards, and windbreaks. Calculated runoff hydrology on watersheds up to 2000 sq. mile drainage using computer modeling techniques. Performed wind and water soil erosion prediction calculations. Reviewed designs of fellow engineers and engineering technicians for completeness and accuracy. Instructed and supervised non-engineers performing engineering tasks. Estimated costs for all projects.

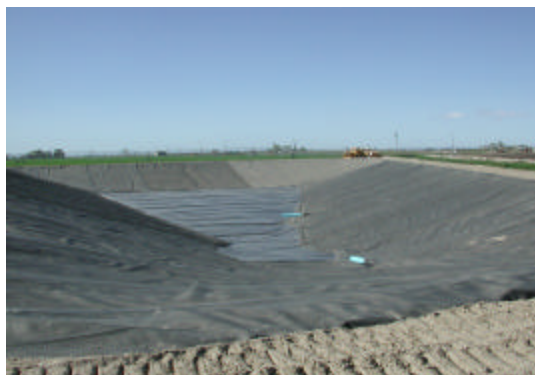
Areas of Specialization and Representative CD Projects

Dairy Waste Storage Lagoon



Sunny Dene Ranches

Sample Project: *Sunny Dene Ranches (South Yakima CD – Privately funded).* Assisted landowner and private consultant in the design, permitting, and construction oversight of waste storage lagoon lined with a compacted soil liner to meet Washington State Department of Ecology Dam Safety regulations. Approx. project cost: CD engineering: 160 hours (\$7,200), construction: \$unknown, estimated to be in excess \$180,000).



Thomasson Dairy

Sample Project: *Thomasson Dairy (Franklin CD – Wa. St. Cons. Comm. Funded)* Designed, permitted, and supervised construction of 2 million gallon waste storage lagoon lined with High Density Polyethylene (HDPE) Liner to aid operator in controlling and storing operations waste over winter months. Approx. project cost: CD engineering: 80 hours (\$3,600), Construction: (\$60,000).



Grandview Dairy

Sample Project: Grandview Dairy (Benton CD – Wa. St. Cons. Comm. Funded)

Designed, permitted, and supervised construction of 3 million gallon waste storage lagoon lined with a compacted soil liner modified with Sodium Bentonite clay to aid operator in controlling and storing operations waste over winter months. Approx. project cost: CD engineering: 160 hours (\$7,200), (Construction: \$83,000.

Manure Collection

Sample Project: Rick Haak Dairy (South Yakima CD – Wa. St. Cons. Comm. funded).

Designed, permitted, and supervised construction of manure collection pit to collect manure scraped from feed alleys for long term storage prior to field application. Structure was built in an area that showed an intermittent seasonal water table, so drainage around the structure was important.

Approx. project cost: CD engineering: 200 hours (\$9,000), construction: (\$75,000)).



Haak Dairy



Veldhuis Dairy

Sample Project: Jake Veldhuis Dairy (South Yakima CD – Wa. St. Cons. Comm. funded).

Designed, permitted, and supervised construction of manure collection pit to collect manure scraped from heifer replacement pens. Manure would then be loaded and transferred to longer storage.

Approx. project cost: CD engineering: 160 hours (\$7,200), construction: \$39,000)



Schmid Dairy

Sample Project: *Robert Schmid Dairy (Underwood CD – Wa. St. Cons. Comm. Funded and landowner funded)*

Designed, permitted, and supervised construction of a large concrete manure storage structure for organic dairy. Due to size of structure, a SEPA review was required. Finished structure capable of storing 4+ months of solids. Landowner provided all of

their own labor so project cost is basically materials only. Estimated cost of this structure if built by a contractor would be roughly twice as much. Approx. project cost: CD engineering: 300 hours (\$13,500, materials cost ~\$175,000 of which only \$50,000 was reimbursed in cost share.



Schmid Dairy

Small Farms / Irrigation

Carl Killian Irrigation Conversion (South Yakima CD – Wa. St. Cons. Comm. Implementation)

Design review and construction oversight of conversion from furrow irrigated vineyard to overhead solid set. Approx project cost: CD Engineering 6 hours (\$270), installation \$8,000.



Carl Killian Irrigation Conversion

Mark Wasemiller, P.E.
Projected Workload
2005-2007 Biennium

Year 1 of Biennium

Activity	Engineer Hours
Livestock	1600
Non-Dairy (Small Farm & Irr.)	220
Training/Workshops/Specs/other	100
Sick/Vacation/Holiday	160
Total	2080

Year 2 of Biennium

Activity	Engineer Hours
Dairy/AFO-CAFO (hours)	1600
Non-Dairy (hours)	220
Training/Workshops/Specs/other (hours)	100
Sick/Vacation/Holiday (hours)	160
Total	2080